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RECENT LITERATURE.

Scharff's 'Distribution and Origin of Life in America.'¹ — Dr. Scharff's 'Distribution and Origin of Life in America' is of extreme interest and of great value to every student of the profound and fascinating problems discussed, whether or not his conclusions meet with the reader's acceptance. To the investigator it is extremely welcome for its bibliographical citations and summaries of fact and opinion put forth by his predecessors in the same field. To the layman it may be misleading if too great importance is given to the author's interpretations and inferences.

A striking feature is the confidence the author manifests in his conclusions, regardless in many instances of the present inadequacy of our knowledge of the biology and the geological history of the greater part of the areas he discusses, as though our present information regarding these subjects was to be looked upon as practically final. Climatic conditions as barriers to the distribution of life and the former wide distribution of ancestral types from which their present modified representatives have necessarily descended, appear to receive very little consideration. Resemblances through convergence of characters due to environment between groups geographically widely separated are rarely given serious consideration, and a tendency is evident to belittle the influence of tides, currents, and other fortuitous means of dispersion. The fact that what we do not know of the fossil content and the geological history of vast areas of South America and of other parts of the world that require consideration in the author's theme, is simply immense in comparison with the known, is rarely recognized in the present work. Neither does the paucity of our knowledge of the existing plant and animal life of Central and South America appear to have received due recognition. Among the birds and mammals of these great regions, new species, and often new genera, are discovered in every new collection that reaches the hands of the expert, while the range of many forms long known to science is greatly and often most unexpectedly extended whenever a collector trained in modern methods of field work enters tropical America. As it is safe to say that the mammals and birds of South America and Central America are far better known than the representatives of any other class, it seems not rash to claim that our knowledge of obscure and not easily observed forms of invertebrate life is far too imperfect to warrant dogmatism in treating of their origin and

¹ Distribution and Origin of Life in America | By | Robert Francis Scharff | Ph. D., B. Sc. | Author of "European Animals, their Geological History and Geographical Distribution." | Corresponding Member of the Academy of Natural Sciences, Philadelphia; | of the Senckenberg Natural History Society, Frankfurt am Main; | of the Linnean Society of Bordeaux; and of the Anthropological Society of Paris | New York | The Macmillan Company | 1912 — 8vo, pp. xvi + 497, 16 map. \$3.00 net.

distribution. Yet the author discusses many such questions with an assurance that only a much greater knowledge of the facts in the case than is at present available would warrant.

It must be said, however, that the author has overlooked but little of the available information bearing upon his subject, and that he has used it effectively in so far as it favors his side of the argument. No one author, however, can in these days bring to all the varied facts and problems of such a broad subject the equipment of an expert, and he is thus prone to give to the literature he cites its full face value, especially when it seems favorable to his hypotheses. Slightly differentiated forms, considered not worthy of nomenclatural recognition by the majority of authorities, are usually cited as full species, and groups proposed as subgenera are commonly cited as full genera, although in various instances they are not currently recognized as having even subgeneric value. In the case of the muskox and his ancestry, he has accepted the baseless conclusions of a recent writer on the subject at the author's own estimate, and thus introduced into his work grave errors that it will now be difficult to eradicate from semi-popular sources of information. In some cases, however, he has overlooked information having an important bearing on points considered, as where in his discussion of the evidences in favor of a mid-Atlantic land bridge between the West Indies and Africa (p. 280 and fig. 14) during the early Tertiary, he cites the seals of the genus *Monachus* as evidence of such a connection, which genus he says occurs only in the Mediterranean and Antillean regions, overlooking the fact that a species (*Monachus schauinslandi* Matschie), very closely related to the other two, has been described from Laysan Island in the mid-Pacific! This, it is true, is a comparatively recent discovery,¹ but serves all the more to show the imperfection of present knowledge of the distribution of important types of even mammalian life.

In his discussion of Antillean life the rice-rats (*Oryzomys*) are said to have a "very wide and discontinuous range in North and South America," suggesting an ancient origin. Few groups of American mammals, it is true, range more widely — from southern United States to Terra del Fuego — nor has any a more continuous or unbroken distribution. This is a small error in comparison with the misstatement that one species (*O. antillarum*), known from only a few specimens, collected some thirty years ago, was formerly "so abundant in Jamaica, and did such damage to crops, that the mongoose, a small carnivore, was imported from India for its destruction," the fact being that the destructive rats of Jamaica and neighboring islands are introduced Old World species of the genus *Mus* (= *Epimys*).

In his discussion of the fauna and flora of Florida, Lower California, and Labrador, the author shows a surprising disregard of the controlling influence of temperature and other climatic conditions upon the range of

¹ Matschie, P. Sitzungsab. Gesell. Nat. Freunde, 1905, pp. 254-262.

plants and animals. In referring to the distribution of Florida plants with West Indian affinities, he says: "If birds had any special influence in the transport of seeds, not the southern portion of Florida but the northern one should show affinities in the flora with the West Indies." In other words, if birds had carried seeds during their migrations to northern Florida, the vegetation of this portion of the state should show affinities with the flora of the West Indies, regardless of climatic barriers that we know would prevent their growth. This is only one of many illustrations that might be cited to show the author's disregard of climatic conditions as a factor in determining on a large scale the present restrictions of range of plant and animal life.

In reference to crocodiles and alligators, which are found in both Asia and America, the author says: "The generally accepted theory, I believe, is that some ancestors of the American alligator has travelled northward, and succeeded in crossing the former land bridge across Bering Strait to northeastern Asia, thence wandering southward to China. We possess no fossil evidence for such a belief. All we know is that the rather generalized alligator *Diplocynodon* lived already at the very commencement of the Tertiary Era both in North America and in Europe, and that it persisted in Europe until Miocene times." Of the crocodile he says: "An equally remarkable fact is that the true crocodile has succeeded in obtaining a footing on the North America continent in one single small area, namely, . . . in southern Florida." Yet he cites the occurrence of their fossil remains in the Eocene of Wyoming, but makes no admission of the possibility of their occurrence in Tertiary times at intermediate points between Wyoming and India, in vast regions now palæontologically very little known, or absolutely unknown. On the contrary, he says "it seems surprising that they have not spread more widely in America." He admits that "only a land connection between America and the Old World in early Tertiary times can explain its [crocodile's] present geographical distribution," but he prefers a land bridge across the north Pacific between western North America and eastern Asia to the commonly accepted Bering Strait bridge.

He contends that ten land bridges are necessary to account for the present distribution of animal life in America. These may be listed as follows:

1. A North Atlantic land bridge between Scotland, Greenland, and Labrador during recent geological times.
2. A North Pacific land bridge at Bering Strait, coincident in time with the North Atlantic bridge.
3. A Mid Atlantic bridge between southern Europe and the West Indies.
4. A Mid Atlantic bridge between Europe and southeastern North America.
5. A South Atlantic bridge between eastern South America and West Africa.
6. A South Atlantic bridge between Patagonia, South Africa, and Madagascar, of which he says: "We can gather from all these expressions of opinion by different authors as to the past geological history of South America that there is comparatively little agreement on this subject."

7. A North Pacific land belt between western North America and eastern Asia.

8. A Pacific land belt between North and South America westward of Central America.

9. An Antarctic bridge between Patagonia, Chile, Australia and New Zealand.

10. An Atlantic bridge between Bermuda and the West Indies, Bermuda being part of a continent that extended northward from the West Indies and joined the mainland of North America somewhere near Massachusetts.

The author takes up his subject geographically in fifteen chapters, beginning with Greenland and passing southward to Argentina and Chile, discussing these in succession from the viewpoint of their biology and geological history, with special consideration of their faunistic affinities. It would therefore have been a great convenience to the reader if he had given a topical résumé of the evidence for the ten land bridges he advocates disconnectedly in the course of the book, summarizing the pros and cons for each in a connected way, defining also their presumed extent and continental connections, and their probable geological age and duration. Former supposed land areas and their connections offer a fascinating topic for speculation, but the evidence at present is so meager and conflicting that the conclusions reached are apt to depend upon the temperamental characteristics of the author.

Dr. Scharff has certainly presented us with a work of unusual interest, and one which will stimulate to further investigation of the problems he has so elaborately discussed.—J. A. A.

Brabourne and Chubb: 'The Birds of South America.'¹—The appearance of the first volume of this monumental work will be welcomed by ornithologists the world over. Even though it be merely a list similar in style to Sharpe's 'Hand-List,'—a framework as it were upon which the main structure is to be built up—it is nevertheless of the greatest assistance to students of the neotropical avifauna, as the writer has already had occasion to prove. It is forty years since Sclater and Salvin published their 'Nomenclator Avium Neotropicalium' and we have had no general work on South American birds since. It is moreover a great advance over Sharpe's 'Hand-List' since the references are given in full with type localities and the nomenclature has been made to conform largely with the International Code. Binomials are used, as the authors explain, merely as a matter of convenience, the intention being to work out the relationship of species and subspecies and adopt trinomials in the body of the work.

¹ The Birds of South America, by Lord Brabourne, F. Z. S., M. B. O. U., and Charles Chubb, F. Z. S., M. B. O. U. (Zoological Department, British Museum). Vol. 1. London: R. H. Porter, 7 Princes Street, Cavendish Square, W. John Wheldon & Co., 38 Great Queen Street, W. C. Taylor & Francis, Red Lion Court, Fleet Street, E. C. [1912] royal 8vo, pp. i-xix + 1-504 with colored map.